When Sensory Inputs Enhance Focus Rather than Distract

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Simon Edwards
Research Acceleration Initiative

Introduction

In this author's 2 November 2023 paper concerning the nature of distraction with and without the presence of Attention Deficit Disorder, this author concluded that the brain's switching between focus on different types of sensory inputs is what leads to difficulties in learning or in performing tasks which require intense focus such as driving. Rather than one type of visual stimulus distracting from another visual stimulus or one type of auditory stimulus distracting from another (as is widely believed to be the culprit,) this author proposed that distraction actually begins when different types of stimulus are introduced.

For example, if the sensation of 'touch' is activated when one needs to observe visual inputs, this would be maximally distracting. While a great effort has been made to encourage drivers to eliminate auditory and visual distractions while driving, no effort has been made to encourage drivers to avoid touch-stimulus. Examples of this, for a driver, would include the sensation of cold or wet skin which might be experienced as a result of getting caught in the rain before getting into a car and the driver becoming more likely to get into an accident, never becoming cognizant that it was not reduced visibility or traction which led to the problem but rather their own sensory-induced inattentive state.

The purpose of this paper is to explore why other types of touch stimulus might actually enhance focus whereas dermal stimulus clearly diminishes it.

Abstract

Although current doctrine holds that touch sensations are interpreted by the brain in the 'pain center,' which is located closer to the core of the brain than to the cortices, I propose that non-pain touch interpretation is a neurologically global process. Just as it is understood that the left hemisphere of the brain is largely responsible for interpreting information from the right half of the body (and vice versa,) I propose that sensations coming from the dermis are principally interpreted by the cortices and not by the core of the brain. As higher brain function is concentrated in the cortices, this would account for why dermal sensations are so universally distracting.

By contrast, I propose that sensory signals emanating from the intestines including those which cannot be consciously perceived such as *quasi-pain signals* (ibid.,) sensations associated with gas bloating or even mild pain signals, because of the location of the source of the signal, are handled by the lower brain in the region closer to the core. This lower brain region is largely inactive except when pain is introduced as demonstrated by fMRI and higher brain regions do not show a marked change from touch sensations. I propose that the reason for this failure to recognize the role of the cortices in

interpreting touch sensations and pain is that the cortices are constantly active in a wakeful person, generally performing more complex tasks such as helping one to carry out conversations or to engage in philosophical thought. When touch signals must be handled by these regions, the level of electrical current remains the same but the pattern of electrical discharge changes in ways too subtle to be detected by fMRI. The need to interpret touch sensations interferes with these higher functions. From an evolutionary standpoint, for pain to be useful to help one to avoid danger, it must be distracting. For it to be distracting, it must disrupt higher brain functions. For it to disrupt higher brain functions, pain and touch sensations must be interpreted by the same parts of the brain responsible for higher reasoning, the cortices.

I, furthermore, propose that when pain or quasi-pain signals emanate from the intestine, they create a similar disruption in the lower brain but not in the cortices. Whereas the lower brain ordinarily introduces a governing effect upon higher brain functions, anything which preoccupies the lower brain liberates the high brain functions from the typically present signal inputs from the lower brain regions. The lower brain regions, for example, constantly nag the higher brain regions to inform them that they should be concerned with things like obtaining food or pursuing hedonistic pleasures, for instances. If these distracting signals could be suspended for even a short length of time, the higher brain would begin working with far greater efficiency. *I would suggest that this is the reason why creativity is maximized in the hypnogogic state* just prior to losing consciousness and just after regaining it. The lower brain functions are first to de-activate during slumber and are the last to re-activate at the end of sleep.

Conclusion

Gentle intestinal stimulation of the sort produced by ordinary digestion might be sufficient to boost creativity, perhaps providing an alternative explanation as to why it is that “food for thought” is so effective a remedy for writer’s block.